REMARKS

In the Office Action mailed on August 20, 2009, the Office reopened prosecution based upon an internal review. By the above claim amendments, claims 1-17 and 19-21 are all of the claims currently pending. Claim 18 is canceled by reason of its incorporation into independent claim 1. Applicants gratefully acknowledge the Examiner's indication that claims 6 and 7 would be allowable if rewritten in independent format.

Claims 9-13 are allowed. Claims 5 and 8 stand rejected under 35 USC §102(b) as allegedly anticipated by US Patent Application Publication No. 2003/0220772 to Chiang, et al.

Applicants respectfully traverse this new rejection based on Chiang.

I.   THE CLAIMED INVENTION

In one aspect and as described in the specification and defined by, for example, claim 5, the present invention is directed to an apparatus for calculating a global optimization to a minimum-maximum problem. A receiver receives data related to the minimum-maximum problem, for populating a min-max model. A first calculator executed by a processor on the apparatus provides a plurality of minimum values of the min-max model. A second calculator executed by the processor locates a global optimum value, given the plurality of minimum values. A transmission port sends the global optimum to at least one of a display device, a printer, and a memory.

Conventional techniques for arriving at a global optimum, as described beginning at line 19 of page 2 of the specification, are NP-hard and difficult to resolve in a reasonable time. These conventional methods include Simulated Annealing, Genetic Algorithm, or other Monte Carlo type techniques.

The claimed invention, on the other hand, provides a method to find a global optimum to a minimum-maximum problem by <u>first calculating a plurality of minimum values</u> and then <u>using these minimum values to locate the global optimum value</u>.

II. THE PRIOR ART REJECTION

The Office newly alleges that newly-cited Chiang teaches the claimed invention defined by claims 5 and 8.

Applicants respectfully disagree, since Chiang is <u>not</u> directed to solving a <u>min-max</u> problem, as clearly required by the plain meaning of the language of the first claim limitation and is a <u>term of art</u> that cannot be ignored by the Office. The Office points to claim 5 and paragraph [0004] of Chiang.

However, claim 5 of Chiang clearly refers to a continuous optimization problem having a closed-form objective function, etc., an entirely different concept from a min-max problem. Paragraph [0004] clearly refers to the problem of finding a globally optimum solution (which could be <u>either</u> a minimum <u>or</u> a maximum value of an objective function), based on knowing that there are a number of local optimum solutions.

Neither claim 5 nor paragraph [0004] of Chiang reasonably describes a <u>min-max problem</u>, since Chiang is merely directed to the problem of finding a <u>global optimal solution</u> in a problem that has more than one <u>local optimal solution</u>, one of which also serves as a global optimal solution. As best understood by the additional reference in the rejection to paragraph [0014] of Chiang, the confusion of the Office arises from an attempt to consider that the discovery of the local optimal solution is broadly interpreted as equivalent to the "... plurality of minimum values ...." of the first claim limitation of claim 5.

The fundamental flaw in this interpretation is that a "min-max problem" is <u>not</u> equivalent to a problem having a plurality of local optimal solutions, one of which is also a global optimal solution. The reason is simple: the plurality of local optimal solutions are <u>all</u> local maximum (or minimum) values of that problem's objective function. A "min-max" problem is a <u>term of art</u> and simply does <u>not</u> refer to a problem having a plurality of local optimal solutions, one of which is also the global optimal solution.

Moreover, the Office does not have a reasonable basis for the interpretation alleged in the rejection, since the rejection improperly <u>re-defines</u> the claim language. That is, contrary to the rephrasing in the rejection of record, the second claim limitation of claim 5 <u>actually</u> clearly requires: "... a calculator to provide a plurality of <u>minimum values of the min-max model</u>...." The Office improperly <u>rephrases</u> this limitation to be: "... a first calculator to provide a plurality of minimum values."

First of all, it is respectfully brought to the attention of the internal reviewer that local optimal solutions are <u>not</u> "minumum values" and the global optimal solution a "maximum value", since each local optimal solution is actually the local <u>maximum</u> (or minimum) value for the objective function. Therefore, this new rejection is clearly incorrect in even its attempt to invoke a broad interpretation for purpose of prosecution, since the local optimal solutions in Chiang are not demonstrated as somehow being "minimum" values, one of which then becomes a "maximum" value as the global optimal solution. The only <u>reasonable</u> interpretation of the plurality of local optimal solutions of Chiang is that they constitute a plurality of <u>maximum</u> (or minimum) values (i.e., local optimal solutions), one of which is the <u>most maximum </u>(or minumum) value (i.e., the global optimal solution). However, this is not what the two rejected claims are describing.

The "broadest reasonable interpretation" appropriate during patent prosecution is <u>not</u> a <u>poetic license</u> by which the Office is allowed to ignore the <u>plain meaning</u> of <u>terms of art</u> (e.g., "minimum-maximum problem", "min-max model", "plurality of minumum values of the min-max model", etc.) that are understood by one having ordinary skill in the art.

Hence, turning to the clear language of the claims, in Chiang there is no teaching or suggestion of: "... An apparatus for calculating a global optimization to a <u>minimum-maximum problem</u>, said apparatus comprising: a receiver to receive <u>data related to said minimum-maximum problem</u>, for populating a <u>min-max model</u>; a first calculator, as executed by a processor on said apparatus, to provide a plurality of <u>minimum values of the min-max model</u>; a second calculator, as executed by said processor, to locate a <u>global optimum value, given said plurality of minimum values</u> .... ", as required by independent claim 5.

Independent claims 8, as amended, has similar language: "... a memory containing <u>data appropriate to a minimum-maximum problem</u>; and an apparatus comprising: a first calculator to provide a plurality of <u>minimum values of said minimum-maximum problem data</u>; and a second calculator to locate a <u>global optimum value, given said plurality of minimum values</u> ...."

Therefore, Applicants submit that there are elements of the claimed invention that are not taught or suggested by Chiang, and the Office is respectfully requested to reconsider and withdraw this rejection.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicants submit that claims 1-17, and 19-21, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

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